

In the Claims

This listing of claims will replace all prior versions and listings of claims in the application:

1 1. (Currently Amended) A method of time scale modification
2 of a digital audio signal comprising the steps of:
3 analyzing an input signal in a set of first equally spaced,
4 overlapping time windows having a first overlap amount S_s ;
5 selecting a base overlap S_s for output synthesis corresponding
6 to a desired time scale modification;
7 calculating a cross-correlation $R[k]$ for index value k between
8 overlapping frames for a range of overlaps between $S_s + k_{\min}$ to
9 $S_s + k_{\max}$ for only a fixed length overlap region less than an entire
10 overlapping region;
11 selecting a value K yielding the greatest cross-correlation
12 value $R[k]$;
13 synthesizing an output signal in a set of second equally
14 spaced, overlapping time windows having a second overlap amount
15 equal to $S_s + K$.

1 2. (Currently Amended) The method of claim 1, wherein:
2 said step of calculating the cross-correlation $R[k]$ employs
3 the equation

$$R[k] = \sum_{i=\text{initial}_x}^{\text{final}_x} \text{sign}\{y[mS_s + i + k]\} \cdot \text{sign}\{x[mS_s + i]\}$$

5 where: $x[i]$ is the analysis of the input signal for index value i ;
6 $y[i]$ is a synthesis signal for the index value i .

1 3. (Original) The method of claim 1, wherein:
2 said step of calculating the cross-correlation $R[k]$ employs
3 only a center half of the overlap region for $k = 0$.

1 4. (Currently Amended) A digital audio apparatus comprising:
2 a source of a digital audio signal;
3 a digital signal processor connected to said source of a
4 digital audio signal programmed to perform time scale modification
5 on the digital audio signal by

6 analyzing an input signal in a set of first equally
7 spaced, overlapping time windows having a first overlap
8 amount,

9 selecting a base overlap S_s for output synthesis
10 corresponding to a desired time scale modification,

11 calculating a cross-correlation $R[k]$ for index value k
12 between overlapping frames for a range of overlaps between
13 $S_s + k_{min}$ to $S_s + k_{max}$ for only a fixed length overlap region
14 less than an entire overlapping region;

15 selecting a value K yielding the greatest
16 cross-correlation value $R[k]$,

17 synthesizing an output signal in a set of second equally
18 spaced, overlapping time windows having a second overlap
19 amount equal to $S_s + K$; and

20 an output device connected to the digital signal processor for
21 outputting the time scale modified digital audio signal.

1 5. (Currently Amended) The digital audio apparatus of claim
2 4, wherein:

3 said digital signal processor is programmed to calculate the
4 cross-correlation $R[k]$ employs the equation

$$5 \quad R[k] = \sum_{i=initial_x}^{final_x} sign\{y[mS_s + i + k]\} . sign\{x[mS_a + i]\}$$

6 where: x[i] is the analysis of the input signal for index value i;
 7 y[i] is a synthesis signal for the index value i.

1 6. (Original) The digital audio apparatus of claim 4,
 2 wherein:
 3 said digital signal processor is programmed to calculate the
 4 cross-correlation R[k] employing only a center half of the overlap
 5 region for k = 0.